Russell County

Estimated Economic Impact of Agriculture, Food, and Food Processing Sectors
5/24/2016

Using the most recent IMPLAN data available (2014) adjusted for 2016, 16 agriculture, food, and food processing sectors were analyzed to determine their overall contribution to the Russell County economy.[1]

These 16 sectors have a total direct output of approximately **$238.9 million** and support **625.5 jobs** in Russell County. Running the model for all 16 sectors simultaneously produces the following results:

Agriculture, Food, and Food Processing Sector Contribution to Overall Russell County Economy						
Impact Type[2]	**Employment**	**% Employment**	**Total Value Added[3]**	**Total Value Added % of Gross Regional Product[4]**	**Output[5]**	**Output % of Gross Regional Product**
Direct Effect	625.5	14.56%	$63,264,277.88	19.26%	$238,940,194.70	72.76%
Indirect Effect	118.8	2.76%	$8,632,677.52	2.63%	$20,206,290.81	6.15%
Induced Effect	99.0	2.31%	$6,202,375.14	1.89%	$12,047,276.62	3.67%
Total Effect	843.4	19.63%	$78,099,330.54	23.78%	$271,193,762.13	82.58%

As shown in the above table, agriculture, food, and food processing sectors support **843.4 jobs**, or **19.63%** of the entire workforce in the county. These sectors provide a total economic contribution of approximately **$271.2 million, roughly 82.58% of the economy.**

Another metric used to calculate the importance of sectors in an economy is their value added as a percentage of GRP. Total value added by the 16 agriculture, food, and food processing sectors is approximately **$78.1 million**, or **23.78% of the GRP**. This indicates that personal income, business income, and taxes generated by these sectors account for **23.78% of the total economy**.

The following tables document the overall summary numbers of the model, top industries affected by employment and output, and a listing of all industries that were analyzed.

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1 Article on building a contribution analysis in IMPLAN that avoids double counting: http://www.implan.com/index.php?option=com_content&view=article&id=660%3A660&catid=253%3AKB33&Itemid=70

2 Direct, indirect, and induced effects sum together to estimate the total economic contribution in the state. **Direct effects** capture the contribution from agricultural and food products. **Indirect effects** capture the economic benefit from farms and agricultural businesses purchasing inputs from supporting industries within the state. **Induced effects** capture the benefits created when employees of farms, agricultural businesses, and the supporting industries spend their wages on goods and services within the state.

3 Value added = labor income + indirect business taxes + other property type income.

4 GRP = final demand of households + governments expenditures + capital + exports - imports - institutional sales.

5 Output = intermediate inputs + value added.

In the top ten agriculture, food, and food processing sectors by employment, the beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming sector is the top employer with **275.6 employees**. This table also shows the amount of jobs that are created by the agriculture industry in Russell County.

Top Ten Sectors by Employment		
Sector	**Total Employment**	**Total Output**
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	275.6	$36,048,152.85
Animal production, except cattle and poultry and eggs	92.0	$13,204,200.72
Other animal food manufacturing	84.3	$119,260,779.95
Grain farming	55.3	$24,746,560.00
Farm machinery and equipment manufacturing	53.1	$30,281,246.91
Wholesale trade	51.9	$8,631,734.00
All other crop farming	27.1	$2,553,958.50
Full-service restaurants	14.2	$591,689.77
Limited-service restaurants	13.5	$991,138.03
Truck transportation	12.6	$2,013,801.97

The other animal food manufacturing sector directly contributes approximately **$119.3 million** to the Russell County economy. The table below also shows the amount of revenue that is generated in other industries by having a strong agriculture industry.

Top Ten Sectors by Output		
Sector	**Total Employment**	**Total Output**
Other animal food manufacturing	84.3	$119,260,779.95
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	275.6	$36,048,152.85
Farm machinery and equipment manufacturing	53.1	$30,281,246.91
Grain farming	55.3	$24,746,560.00
Animal production, except cattle and poultry and eggs	92.0	$13,204,200.72
Wholesale trade	51.9	$8,631,734.00
Dairy cattle and milk production	10.1	$7,703,382.48
Petroleum refineries	0.4	$3,074,912.83
Owner-occupied dwellings	0.0	$2,820,147.24
All other crop farming	27.1	$2,553,958.50

Below is a summary of all agriculture data with employment levels and output level. These values can tell how many jobs are represented by each agriculture, food, and food processing sector and the output they contributed to the Russell County economy.

All Agriculture, Food, and Food Processing Sectors		
Sector	**Total Employment**	**Total Output**
Oilseed farming	1.8	$2,439,260.57
Grain farming	55.3	$24,746,560.00
Vegetable and melon farming	0.4	$191,213.26
Greenhouse, nursery, and floriculture production	0.6	$207,909.50
All other crop farming	27.1	$2,553,958.50
Beef cattle ranching and farming, including feedlots and dual-purpose ranching and farming	275.6	$36,048,152.85
Dairy cattle and milk production	10.1	$7,703,382.48
Poultry and egg production	0.1	$99,111.77
Animal production, except cattle and poultry and eggs	92.0	$13,204,200.72
Other animal food manufacturing	84.3	$119,260,779.95
Bread and bakery product, except frozen, manufacturing	4.3	$448,817.41
Frozen cakes and other pastries manufacturing	0.3	$35,754.57
Sawmills	1.2	$273,328.11
Farm machinery and equipment manufacturing	53.1	$30,281,246.91
Veterinary services	11.3	$913,752.96
Landscape and horticultural services	8.1	$532,765.14

All 105 counties in Kansas have an IMPLAN model and an agriculture, food, and food processing contribution summary. These values do not factor in the retail environment of food sales. Food retail is important, but in order to provide the most accurate picture of what production agricultural and processing contributes to Russell County, the retail sector was omitted.

Calculations Including Ethanol Production

Estimated Impact of Agriculture, Food, Food Processing and Ethanol Production on Russell County Economy

In 2014, Russell County produced **55 million gallons** of ethanol worth an estimated **$128.7 million** dollars. The impact on page one includes by-products from ethanol plants such as distiller's dried grain with solubles (DDGS), but do not account for the economic activity generated by ethanol fuel production. Namely, this is because ethanol fuel production is included in sector 165, other basic organic chemical manufacturing, which encompasses more than ethanol production and was not modeled in the original scenario. Therefore, utilizing the full sector value would inflate the results. If we were to include sector 165 in the analysis with a direct value of $140.4 million, the total contribution to agriculture increases to **$413.9 million**, represents **23.04% of the jobs**, and increases total value added to **$91.3 million** in Russell County.

Agriculture, Food, Food Processing, and Ethanol Sector Contribution to Overall Russell County Economy						
Impact Type[2]	**Employment**	**% Employment**	**Total Value Added[3]**	**Total Value Added % of Gross Regional Product[4]**	**Output[5]**	**Output % of Gross Regional Product**
Direct Effect	684.6	15.94%	$71,391,764.95	21.74%	$367,640,195.76	111.95%
Indirect Effect	187.5	4.36%	$12,531,828.96	3.82%	$31,984,079.24	9.74%
Induced Effect	117.5	2.73%	$7,359,594.79	2.24%	$14,296,590.26	4.35%
Total Effect	989.6	23.04%	$91,283,188.70	27.80%	$413,920,865.26	126.04%

10 Direct, indirect, and induced effects sum together to estimate the total economic contribution in the state. **Direct effects** capture the contribution from agricultural and food products. **Indirect effects** capture the economic benefit from farms and agricultural businesses purchasing inputs from supporting industries within the state. **Induced effects** capture the benefits created when employees of farms, agricultural businesses, and the supporting industries spend their wages on goods and services within the state.

11 Value added = labor income + indirect business taxes + other property type income.

12 GRP = final demand of households + governments expenditures + capital + exports - imports –institutional sales.

13 Output = intermediate inputs + value added.